

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-11 (Canceled).

Claim 12 (Currently Amended): System for measuring the refractive index of at least one medium comprising:

a waveguide comprising at least one transducer formed by a blazed Bragg grating, in [[the]] a part of the waveguide brought into contact with the medium, ~~by a blazed Bragg grating~~, the spectral response of ~~which~~ the blazed Bragg grating depends on the refractive index of the medium by means of energy coupling between the guided mode and cladding modes and/or a continuum of radiative modes,

a light source optically coupled to the waveguide in order to direct this light therein and to make it interact with the grating,

spectral analysis means provided to analyse the light which has interacted with the blazed Bragg grating and to provide a spectrum corresponding to this grating,

acquisition means provided to recover this spectrum, and

electronic processing means provided to correlate, from the spectrum thus recovered, the spectral response of the blazed Bragg grating with a value of the refractive index of the medium and to provide this value.

Claim 13 (Previously Presented): System according to Claim 12, in which the electronic processing means are provided in order to determine the lower and upper envelope curves of the normalized spectrum and the normalized area between these two curves.

Claim 14 (Previously Presented): System according to Claim 12, in which the waveguide comprises a single blazed Bragg grating.

Claim 15 (Previously Presented): System according of Claim 12, in which the waveguide comprises a plurality of blazed Bragg gratings, the spectral analysis means are provided in order to analyse the light which has interacted with the gratings and to provide the spectra corresponding respectively to these gratings, the acquisition means are provided in order to demultiplex, in an optical or digital manner, the spectra thus provided and to discriminate the respective spectral responses of the gratings and the electronic processing means are provided in order to correlate the spectral response of each grating with the value of the refractive index of the medium corresponding to this grating.

Claim 16 (Previously Presented): System according to Claim 12, in which the light source is a broad spectrum source.

Claim 17 (Previously Presented): System according to Claim 14, in which the light source is a narrow spectrum source, the wavelength of which can be tuned, and the spectral analysis means comprise a photodetector.

Claim 18 (Previously Presented): System according Claim 12, in which the light source is optically coupled to a first end of the waveguide and the spectral analysis means are optically coupled to a second end of this waveguide, for the purpose of measuring the refractive index by transmission.

Claim 19 (Previously Presented): System according Claim 12, in which the light source and the spectral analysis means are optically coupled to a first end of the waveguide and means of reflecting the light are provided at the second end of the waveguide, for the purpose of measuring the refractive index by reflection.

Claim 20 (Previously Presented): System according to Claim 12, in which the acquisition and spectral analysis means are provided in order to acquire each spectrum, with as small a wavelength pitch as allowed by the analysis technique.

Claim 21 (Previously Presented): System according Claim 12, in which the waveguide is an optical fibre.

Claim 22 (Previously Presented): System according Claim 12, in which the waveguide is a planar waveguide.